

Amendments to the Claims

1. (Currently Amended) A method of monitoring a packet-switched network using traffic logs, comprising:

(a) creating a histogram file associated with one of a node and a link within the packet-switched network;

(b) generating, at a first location within the packet-switched network, a traffic log specific to a particular packet at a first location within the network based upon detection of ~~[[the]]~~ a content~~[[s]]~~ of ~~[[a]]~~ the packet, the traffic log containing a plurality of values detected within the packet, ~~the plurality of values being read from the packet including~~ comprising a network entry point of the packet, a network exit point of the packet, and a packet state, wherein the packet state includes a congested state indication which is specified by the contents of the packet;

(c) transferring the traffic log from the first location to a second location;

(d) storing the traffic log generated by the network at the second location;

(e) analyzing the stored traffic log to determine the time of creation of the traffic log and ~~the network entry and exit points of the packet~~ one or more nodes of a path traversed by the packet through the packet switched network from the network entry point to the network exit point; and

(f) updating the histogram file ~~using~~ according to at least the time of creation of the traffic log~~[[,]]~~ ~~at least the packet state and~~ at least one of the entry and exit points of the packet, wherein the histogram file is utilized to monitor network conditions in near real-time enabling the detection and correction of network overloads and congestion at one of a network node and a network node link before network customers are affected.

2. (Original) The method of claim 1, wherein the histogram file is a flat file, whereby direct and rapid access to stored data is effected.

3. (Original) The method of claim 1, wherein two histogram files are created, a first histogram being representative of traffic being passed into the network and a second histogram being representative of the traffic being passed from the network.

4. (Currently Amended) The method of claim 1, wherein the histogram file is representative of traffic passing to a ~~host~~ node connected to the entry or exit point.
5. (Previously Presented) The method of claim 1, further comprising repeating steps (b) - (d) for at least a predetermined period.
6. (Cancelled)
7. (Original) The method of claim 1, wherein the histogram plots packets per minute versus time.
8. (Original) The method of claim 1, further comprising broadcasting from a server computer data representative of the histogram to a client computer.
9. (Original) The method of claim 1, wherein the network is a Mobitex network.
10. (Original) The method of claim 1, further comprising displaying a histogram based on data in the histogram file.
11. (Currently Amended) The method of claim 1, further comprising creating at least one histogram for each ~~host~~ node of the network.
12. (Currently Amended) The method of claim 11, further comprising selecting for display the at least one histogram for a particular node ~~host~~.
13. (Original) The method of claim 1, further comprising monitoring a central location of the network for new traffic logs.
14. (Currently Amended) A method of monitoring packet traffic through a node of a packet-switched network using traffic logs, comprising:
 - (a) creating a histogram file for at least one node in the network;

(b) generating a traffic log specific to a particular packet based upon detection of a content of the packet at a first location within the network based upon detection of the content[[s]] of a packet, the traffic log containing a plurality of values being read from the packet, the plurality of values including a network entry point of the packet, a network exit point of the packet, and a packet state, wherein the packet state includes a congested state which is specified by the contents of the package;

(c) transferring the traffic log from the first location to a second location;

(d) storing the traffic log generated by the network at the second location;

(e) analyzing the stored traffic log to determine the time of creation of the traffic log and the network entry and exit points of the packet;

(f) determining a network path between the entry and exit points of the packet;

(g) determining whether the node falls along the network path; and

(h) updating the histogram file using at least the time of creation of the traffic log and at least the packet state when the node falls along the network path, wherein the histogram file is utilized to monitor network conditions in near real-time enabling the detection and correction of network overloads and congestion at one of a network node and a network node link before network customers are affected.

15. (Original) The method of claim 14, wherein the histogram file is a flat file.

16. (Original) The method of claim 14, wherein two histogram files are created, a first histogram being representative of traffic being passed towards a higher level of the network and a second histogram being representative of the traffic being passed towards a lower level of the network or outside the network.

17. (Previously Presented) The method of claim 14, further comprising repeating steps (b) - (f) for at least a 24 hour period.

18. (Original) The method of claim 14, wherein the histogram plots packets per minute versus time.

19. (Original) The method of claim 14, further comprising broadcasting, from a server computer, data representative of the histogram to a client computer.
20. (Original) The method of claim 14, wherein the network is a Mobitex network.
21. (Original) The method of claim 14, further comprising displaying a histogram based on data in the histogram file.
22. (Original) The method of claim 14, further comprising creating at least one histogram for each node of the network.
23. (Original) The method of claim 14, further comprising selecting for display the at least one histogram for a particular node.
24. (Original) The method of claim 14, further comprising monitoring a central location of the network for new traffic logs.
25. (Currently Amended) A method of monitoring packet traffic passing through a link connecting two nodes of a packet-switched network using traffic logs, comprising:
- (a) creating a histogram file for at least one link in the network;
 - (b) generating a traffic log specific to a particular packet based upon detection of a content of the packet at a first location within the network based upon detection of the content[[s]] of a packet, the traffic log containing a plurality of values detected within the packet, the plurality of values being read from the packet including a network entry point of the packet, a network exit point of the packet, and a packet state, wherein the packet state includes a congested state which is specified by the content[[s]] of the packet;
 - (c) transferring the traffic log from the first location to a second location;
 - (d) storing the traffic log generated by the network;
 - (e) analyzing the traffic log to determine the time of creation of the traffic log and the network entry and exit points of the packet;
 - (f) determining a network path between the entry and exit points;

(g) determining whether the link falls along the network path;
(h) determining a number of bytes carried by the packet associated with the traffic log;
and

(i) updating the histogram file using at least the time of creation of the traffic log, the packet state, and the number of bytes when the link falls along the network path, wherein the histogram file is utilized to monitor network conditions in near real-time enabling the detection and correction of network overloads and congestion at one of a network node and a network node link before network customers are affected.

26. (Original) The method of claim 25, wherein the histogram file is a flat file.

27. (Original) The method of claim 25, wherein two histogram files are created, a first histogram being representative of traffic being passed towards a higher level of the network and a second histogram being representative of the traffic being passed towards a lower level of the network or outside the network.

28. (Original) The method of claim 25, further comprising repeating steps (b) - (g) for at least a 24 hour period.

29. (Original) The method of claim 25, wherein the histogram plots bytes per second versus time.

30. (Original) The method of claim 25 further comprising broadcasting from a server computer to a client computer data representative of the histogram.

31. (Original) The method of claim 25, wherein the network is a Mobitex network.

32. (Original) The method of claim 25, further comprising displaying a histogram based on data in the histogram file.

33. (Original) The method of claim 25, further comprising creating at least one histogram for each link of the network.

34. (Original) The method of claim 25, further comprising selecting for display the at least one histogram for a particular link.

35. (Original) The method of claim 25, further comprising monitoring a central location of the network for new traffic logs.

36. (Currently Amended) A method of monitoring the operations of a packet-switched network, the network automatically generating a traffic log specific to a particular packet based upon detection of a content of the packet when a packet enters or exits the network by detecting values from the packet, the method comprising:

(a) detecting when a new traffic log is available at a network control center;

(b) downloading the new traffic log to a server computer that maintains a plurality of histogram files;

(c) updating at least one histogram file of the server computer using information available from the new traffic log by analyzing the new traffic log to determine one or more values detected from the packet that are stored by the new traffic log that are relevant to the at least one histogram, the one or more values including a packet state, wherein the packet ~~state~~ includes a ~~congestion~~ traffic state indication of at least one of the following data elements: an “OK” state, an “illegal” state, a “congested” state and an “error” state;

(d) deleting the new traffic log; and

(e) making the updated at least one histogram file available to a client computer from the server computer, wherein the histogram file is utilized to monitor network conditions in near real-time enabling the detection and correction of network overloads and congestion at one of a network node and a network node link before network customers are affected.

37. (Original) The method of claim 36, wherein the histogram file is a flat file.

38. (Original) The method of claim 36, wherein the histogram is representative of traffic passing through or via at least one of a host connected to the network, a node in the network and a link connecting two nodes of the network.

39. (Original) The method of claim 36, wherein the network is a Mobitex network.

40. (Cancelled)

41. (Original) The method of claim 36, further comprising broadcasting the histogram file to a plurality of client computers.

42. (Original) The method of claim 36, wherein step (c) comprises incrementing a value in the histogram file.

43. (Currently Amended) A method of analyzing the performance of a packet-switched network where packets traverse multiple networks, the packet –switched network automatically generating a traffic log specific to a particular packet based upon detection of a content of the packet each time a packet exits the packet-switched network, each traffic log including at least the time the traffic log was created, the addresses of the packet sender and packet recipient, and the entry and exit packet-switched network nodes, the method comprising the steps of:

(a) collecting at a centralized location a plurality of traffic logs from the packet-switched network, with each traffic log containing information relevant to a different packet that has exited the packet-switched network;

(b) analyzing each of the plurality of traffic logs to determine information about each of the packets that have exited the packet-switched network;

(c) automatically generating a plurality of histograms, each histogram being based on information gleaned from the plurality of traffic logs about the packets that have exited the packet-switched network, wherein each histogram is utilized to monitor network conditions in near real-time enabling the detection and correction of network overloads and congestion at one of a network node and a network node link before network customers are affected, and

(d) wherein at least one histogram is representative of packet traffic passing through a host connected to the packet-switched network.

44. (Original) The method of claim 43, wherein at least one histogram is representative of packet traffic passing through a node of the network.
45. (Original) The method of claim 43, wherein at least one histogram is representative of data traffic travelling over a link in the network.
46. (Original) The method of claim 43, wherein the histograms are stored as flat files.
47. (Original) The method of claim 43, wherein steps (a) and (b) are carried out on a server computer and at least one histogram is supplied to a client computer.
48. (Original) The method of claim 43, further comprising displaying at least one histogram on a computer display.
49. (Currently Amended) A system for monitoring a packet-switched network that automatically generates traffic logs, comprising:
- (a) a network control center at which the traffic logs are collected, ~~with each traffic log being specific to a particular packet based upon detection of a content of the packet and~~ containing a plurality of values detected within a packet including a network entry point and a network exit point and a packet state, wherein the packet state includes a congested state which is specified by the content[[s]] of the packet; and
 - (b) a computer operable to (i) create a histogram file, (ii) store a traffic log generated by the network, (iii) analyze the traffic log to determine the time of creation of the traffic log and the network entry and exit points of a packet, and (iv) update the histogram file using at least the time of creation of the traffic log, at least the packet state, and at least one of the entry and exit points of the packet, wherein the histogram file is utilized to monitor network conditions in near real-time enabling the detection and correction of network overloads and congestion at one of a network node and a network node link before network customers are affected.
50. (Original) The system of claim 49, wherein the histogram file is a flat file.

51. (Original) The system of claim 49, wherein the computer creates two histogram files, a first histogram being representative of traffic being passed into the network and a second histogram being representative of the traffic being passed from the network.

52. (Original) The system of claim 49, wherein the histogram file is representative of traffic passing through a host connected to the entry or exit point.

53. (Cancelled)

54. (Original) The system of claim 49, wherein the histogram is a plot of packets per minute versus time.

55. (Original) The system of claim 49, wherein the computer is a server computer and the server computer broadcasts data representative of the histogram to a client computer.

56. (Original) The system of claim 49, wherein the network is a Mobitex network.

57. (Original) The system of claim 49, wherein a client computer displays a histogram based on data in the histogram file.

58. (Original) The system of claim 49, wherein the computer creates at least one histogram for each host of the network.

59. (Original) The system of claim 49, wherein the computer monitors the network control center for new traffic logs.

60. (Currently Amended) A system for monitoring packet traffic through a node of a packet-switched network that automatically generates traffic logs, comprising:

- (a) a server connected to a network control center; and
- (b) a client connected to the server,

wherein the server is operable to (i) create a histogram file for at least one node in the network, (ii) store a traffic log specific to a particular packet based upon detection of a content of the packet and generated by the network that contains a plurality of values detected within a packet, the plurality of values being read from the packet including a packet state, wherein the packet state includes a congested state which is specified by the content[[s]] of the packet, (iii) analyze the traffic log to determine the time of creation of the traffic log and the network entry and exit points of the packet, (iv) determine a network path between the entry and exit points, (v) determine whether the node falls along the network path, and (vi) update the histogram file using at least the time of creation of the traffic log and the packet state when the node falls along the network path, wherein the histogram file is utilized to monitor network conditions in near real-time enabling the detection and correction of network overloads and congestion at one of a network node and a network node link before network customers are affected.

61. (Original) The system of claim 60, wherein the histogram file is a flat file.

62. (Original) The system of claim 60, wherein the server creates two histogram files, a first histogram being representative of traffic being passed towards a higher level of the network and a second histogram being representative of the traffic being passed towards a lower level of the network or outside the network.

63. (Original) The system of claim 60, wherein the histogram is a plot of packets per minute versus time.

64. (Original) The system of claim 60, wherein the server broadcasts to the client data representative of the histogram.

65. (Original) The system of claim 60, wherein the network is a Mobitex network.

66. (Original) The system of claim 60, wherein the client displays a histogram based on data in the histogram file.

67. (Original) The system of claim 60, wherein the server creates at least one histogram for each node of the network.

68. (Original) The system of claim 60, wherein the client is operable to select for display the at least one histogram for a particular node.

69. (Currently Amended) A system for monitoring packet traffic passing through a link connecting two nodes of a packet-switched network that automatically generates traffic logs, comprising:

(a) a server; and

(b) a client connected to the server,

wherein the server is programmed to (i) create a histogram file for at least one link in the network, (ii) store a traffic log specific to a particular packet based upon detection of a content of the packet and generated by the network that contains a plurality of values being read from within a packet including a network entry point, a network exit point, a packet state, wherein the packet state includes a congestion state which is specified by the content[[s]] of the packet, (iii) analyze the traffic log to determine the time of creation of the traffic log and the network entry and exit points of the packet, (iv) determine a network path between the entry and exit points, (v) determine whether the link falls along the network path, (vi) analyze the traffic log to determine the number of bytes carried by the packet associated with the traffic log, and (vii) update the histogram file using at least the time of creation of the traffic log, the packet state, and the number of bytes when the link falls along the network path, wherein the histogram file is utilized to monitor network conditions in near real-time enabling the detection and correction of network overloads and congestion at one of a network node and a network node link before network customers are affected.

70. (Original) The system of claim 69, wherein the histogram file is a flat file.

71. (Original) The system of claim 69, wherein the server creates two histogram files, a first histogram being representative of traffic being passed towards a higher level of the network and

a second histogram being representative of the traffic being passed towards a lower level of the network or outside the network.

72. (Original) The system of claim 69, wherein the histogram is a plot of bytes per second versus time.

73. (Original) The system of claim 69, wherein the server broadcasts to the client data representative of the histogram.

74. (Original) The system of claim 69, wherein the network is a Mobitex network.

75. (Original) The system of claim 69, wherein the client displays a histogram based on data in the histogram file.

76. (Original) The system of claim 69, wherein the server creates at least one histogram for each link of the network.

77. (Original) The system of claim 69, wherein the client is operable to select for display the at least one histogram for a particular link.

78. (Currently Amended) A system for monitoring the operations of a packet-switched network, the network automatically generating a traffic log when a packet enters or exits the network, the system comprising:

a server, in communication with a network control center, for detecting when a new traffic log specific to a particular packet based upon detection of a content of the packet is available at the network control center, for downloading the new traffic log, and for updating at least one histogram file using information available from the new traffic log by analyzing the traffic log to determine one or more values being detected and read from the content[[s]] of a packet, wherein the one or more values include a packet state, wherein the packet state includes a congestion state specified by the content[[s]] of the packet and wherein the at least one histogram file is utilized to monitor network conditions in near real-time enabling the detection and

correction of network overloads and congestion at one of a network node and a network node link before network customers are affected; and
a client computer for displaying the histogram.

79. (Original) The system of claim 78, wherein the histogram file is a flat file.

80. (Original) The system of claim 78, wherein the histogram is representative of traffic passing through or via at least one of a host connected to the network, a node in the network and a link connecting two nodes of the network.

81. (Original) The system of claim 78, wherein the network is a Mobitex network.

82. (Original) The system of claim 78, wherein the histogram includes information representative of a state of each of the packets associated, respectively, with each of the traffic logs.

83. (Original) The system of claim 78, wherein the server broadcasts the histogram file to a plurality of client computers.

84. (Currently Amended) A system for analyzing the performance of a packet-switched network where packets traverse multiple networks, the network automatically generating a traffic log specific to a particular packet based upon detection of a content of the packet each time a packet enters or exits the packet-switched network, each traffic log including at least the time the traffic log was created, the address of the packet sender and packet recipient, and the entry and exit packet-switched network nodes, the system comprising:

(a) a traffic log database containing a plurality of traffic logs, each traffic log containing a plurality of values detected in and read from the content[[s]] of the packet; and

(b) a computer, the computer operable to download traffic logs from the traffic log database, to analyze each of the traffic logs to determine one or more values detected from each of the packets, and to generate and store a plurality of histograms, each histogram being generated from information gleaned from the plurality of traffic logs about each of the packets,

wherein at least one histogram is representative of packet traffic passing to or from another network, through or over at least one of a host connected to the packet-switched network, a node of the packet-switched network, and a link in the packet-switched network and wherein the at least one histogram is utilized to monitor network conditions in near real-time enabling the detection and correction of network overloads and congestion at one of a packet-switched network node and a packet-switched network node link before network customers are affected.

85. (Original) The system of claim 84, wherein the histograms are stored as flat files.

86. (Original) The system of claim 84, wherein the computer is a server computer.

87. (Original) The system of claim 84, wherein the at least one histogram is supplied to a client computer.